VOLUME TWO   Number THREE   1/15/80

REJUVENATION??? New Life for the Bally ARCADE? On Friday, Jan.4, Fidelity Electronics, Ltd., signed a letter of intent covering the purchase of the Consumer Products Div. of Bally. (Fidelity now builds the line of ___ Challenger electronic board games, including the latest talking Chess Challenger). The above was announced to the Bally dealers/distributors at the Winter Consumer Electronics Show on Saturday, and so Tom Wood and I hot-footed it over to the Fidelity stand. We had a very interesting discussion with their Engineering Manager, and talked about our goals, their inten- tions, etc. At the moment, it seems like Fidelity will pump up the ARCADE production line and get 10 or more cartridges under way for distribution this year. They plan on reviewing the Add-On option later this year, and since there is now a chance that this device may get into production after all, I have revised my plans and placed the additional memory unit onto a low priority slot. However, work on a somewhat less comprehensive device is underway, one that I call PROJECT ONE.

PROJECT ONE is planned to be a printed circuit board that will be able to have two modes of operation. One, with an additional power supply, will contain some memory and have a connector for a keyboard. 32K is planned. In the second mode, there will be an additional connector that will interface to a S-100 system. In this way, the Bally and the S-100 devices that can be connected will be able to communicate. Effort is now underway to translate a prototype board into printed circuit format, and we expect to have the units (bare but with sockets and small parts soldered in place) completed by mid-summer. Cost is programmed not to exceed $75.

POPULARITY CONTEST is underway to determine which of the following are feasible to pursue. Please prioritize this list against your own goals. I'll tabulate your responses to me on Feb. 6, and we shall evaluate them.
        Plug in cartridges of languages other than Tiny BASIC
        Data processing - inventories, indexes, keeping track
        Word processing
        Modem access to telephone circuits, originate/receive
        Self diagnostic cartridge
        Computer control of external devices - broad spectrum
        Remote readouts, without using the TV screen
        Continuous real time clock, readable by computer
        Bally - Bally interconnection by cables
        Power control of tape drive including locating files, adding/removing data
        Light pen
        Digital plotter
        Prom Burner
        Vocal communication

MODEM is one item I'd be greatly interested in - so we can communicate via the tele- phone lines, or use TYMESHARE, or use a bulletin-board type of nation-wide service. One of these, SOURCE, was shown in operation at the CES by the TI computer display, primarily by illustrating the message function. One of our subscribers is TCA922, in case any of you already have this particular service. There is a write-up on SOURCE in the Jan. Interface Age, and they will have a follow-up Z-80 tie-in article in March. There is an article on the CBBS system in the January Microcomputing.

WEIRD PROGRAMS are still being generated. Try this one by Bob Wagner:
        10 LIST 15000
        20 GOTO 10
                          or
                                10 LIST 14120,15300
                                20 GOTO 10

arcadian™

BALLY AWARDS announced by VIDEO magazine in their March issue - They reviewed TV-type games and gave 10 awards, of which Bally received 3: "Best Audio and Video Effects"-BALLY; "Best Sports Game"-Football; and "Best Commercial Arcade Game"-Space Invaders.

PITTSBURGH area subscribers are invited to call JIM BAILEY at 833-8768 (Library area)

RAPID BOX MOVEMENT is desired by some game programmers who would like to simulate the movement of a ball,etc., They wonder how to control a box so that it moves rapidly across the screen.

CHIP FAILURE can occur if a large static electricity charge is built up. If you do experimentation, you might consider some kind of isolation device or scheme. Ron Schwenk suggests all experimentation thru the hand controller ports be done with No.4 - failure of that one segment of the chip still allows use of 1 & 2 in games and #3 for the interface.

ENLARGED LETTERS have cropped up again. This time they are done graphically, as opposed to previous POKE'd versions. co-Author Phil Morton will be vanning to Alaska this summer and would like to contact Northerners. He is at 1839 S. Halsted St. Chicago, IL 60608, (312) 666-5628. In the program, I used BIG LETTERS for the items to be printed where Phil used ARCADIAN HOT SHOT. Lines 129-240 clean up the screen and add the buckshot. Phil has an AXIOM EX-850 video printer which can 'photograph' the screen and provide a reproducible image.

b means x (multiply)
c means + (divide)

```
1   ELECTRONIC
2 . VISUALIZATION
3 .     CENTER
4 .
5 .BY DAN SANDIN
6 .& PHIL MORTON
15 .2 TEXT LINES SCALED
19 INPUT L
20 CLEAR ;BC=0;FC=7
30 PRINT "  BIG
40 PRINT "LETTERS
50 Q=29
60 IF L>4Q=37
70 V=37
80 IF L>4V=40
90 FOR X=-80TO 160cL-80
95 FOR Y=QTO 43

BIGGER VIA 'L' VARIABLE...
100 IF PX(X,Y)BOX (X+81)bL-79,(Y-V)bL,L,L,1
110 NEXT Y
120 NEXT X
129 .TEXT LINE ERASE LOOP
130 FOR A=QTO 44
140 BOX 0,A,160,1,2
150 NEXT A
200 .INDEFINATE RND (2)    PIXELATING FIELD
230 BOX RND (160)-80,RND (88)-44,RND (2),RND (2),3
240 GOTO 230
```

ARCADIAN HOT SHOT

This version of SLOT MACHINE has an interesting set of graphics as the 'reels' rotate. I kept losing money, maybe you'll have better luck.

```
8 . SLOT MACHINE
9 .MUELLER 8-4-79
10 CLEAR
20 BC=-24
30 FC=127
35 NT=0
40 PRINT . ELECTRONIC SLOT PAYOFF;"
50 PRINT . $$$ 200     *** 25"
60 PRINT . &&& 100     @@@ 5"
65 PRINT . %%% 50"
70 CY=-5
80 PRINT . LEMON LEMON LEMON"
85 BOX -6,-5,143,22,3
86 BOX -6,-5,139,18,3
90 FOR X=-54TO 42STEP 48
100 BOX X,-5,41,16,3
110 NEXT X
120 D=1000
130 E=1000
140 CX=-67;CY=-32
145 NT=0;FC=127;BC=-24
150 PRINT "PLAYER #1 FUNDS   $",#1,D
155 CX=-67
160 PRINT "PLAYER #2 FUNDS   $",#1,E
170 IF TR(1) GOTO 200
180 IF TR(2) GOTO 220
190 GOTO 170
195 NT=0
200 F=1
205 FOR Z=16TO 22;&(Z)=79;NEXT Z
210 GOTO 221
220 F=2;GOTO 205
221 CX=-65;CY=-5;GOSUB 1060
222 CX=-17;CY=-5;GOSUB 1060
223 CX=31;CY=-5;GOSUB 1060
224 NT=4
230 FOR G=1TO 8
240 BOX -6,-5,139,18,3
250 NEXT G
260 IF TR(F)=0GOTO 280
270 GOTO 230
280 IF F=1D=D-1
290 IF F=2E=E-1
300 A=RND (10)
310 B=RND (10)
320 C=RND (10)
330 CX=-65
340 CY=-5
350 IF A=1GOSUB 1010
360 IF A=2GOSUB 1020
370 IF A=3GOSUB 1020
380 IF A=4GOSUB 1030
390 IF A=5GOSUB 1030
400 IF A=6GOSUB 1040
410 IF A=7GOSUB 1040
420 IF A>7GOSUB 1050
430 CX=-17;CY=-5
440 A=Z
450 IF B=1GOSUB 1010
460 IF B=2GOSUB 1020
470 IF B=3GOSUB 1030
480 IF B=4GOSUB 1030
490 IF B=5GOSUB 1040
500 IF B=6GOSUB 1040
510 IF B>6GOSUB 1050
520 CX=31;CY=-5
530 B=Z
540 IF C=1GOSUB 1010
550 IF C=2GOSUB 1020
560 IF C=3GOSUB 1030
570 IF C=4GOSUB 1030
580 IF C=5GOSUB 1040
590 IF C>5GOSUB 1050
595 FOR O=22TO 16STEP -1;&(O)=0;NEXT O
600 C=Z
610 IF A=BIF B=CGOTO 625
620 GOTO 140
625 BC=7;FC=81
630 CX=-67;CY=-32;PRINT . WINNER:  PLAYER", #2,F,;PRINT . "
635 CX=-67;CY=-67;PRINT . ↑ ↑ ↑ WINNER ↑ ↑ ↑"
636 FOR V=1TO (B-C)
637 &(19)=37;&(17)=31;&(21)=47;&(22)=31
638 FC=83
639 FOR U=30TO 20STEP -1;&(16)=U;NEXT Z
640 FC=172
641 FOR U=20TO 30;&(16)=U;NEXT U
642 NEXT U
644 FOR Z=22TO 16STEP -1;&(Z)=0;NEXT Z
649 IF C=1P=200
650 IF C=2P=100
660 IF C=3P=50
670 IF C=4P=25
680 IF C=5P=5
700 IF F=1D=D+P
710 IF F=2E=E+P
720 GOTO 140
1010 PRINT . $$$";Z=1;RETURN
1020 PRINT . &&&";Z=2;RETURN
1030 PRINT . %%%";Z=3;RETURN
1040 PRINT . ***";Z=4;RETURN
1050 PRINT . @@@";Z=5;RETURN
1060 PRINT . ###";RETURN
```

```
  1 . MONTHLY LOAN PAYMENT
  2 . BY G.HALLQUIST
  4 :RETURN
  5 CLEAR ;NT=1
 10 FOR K=0TO 125;@(K)=0;MU=31+K;NEXT K
 20 FOR K=13TO 8STEP -1
 30 INPUT "LOAN AMOUNT DIGIT?"L
 40 @(K)=L;NEXT K
 50 INPUT "MONTHS?"M
 60 FOR K=45TO 41STEP -1
 70 INPUT "INTEREST RATE DIGIT?"I
 80 @(K)=I;NEXT K
 90 @(65)=1;@(64)=2;@(80)=1;@(26)=1
100 $c@(36),@(54),@(36)
110 $+@(36),@(18),@(36)
120 FOR K=1TO M;MU=30+K
130 $b@(36),@(72),@(72);NEXT K
140 $c@(18),@(72),@(72)
150 $-@(18),@(72),@(72)
160 $-@(36),@(18),@(36)
170 $c@(72),@(36),@(72)
180 $c@(0),@(72),@(90)
190 @(113)=5;$+@(90),@(108),@(90)
200 FOR K=90TO 95;@(K)=0;NEXT K
210 CLEAR ;PRINT "LOAN AMOUNT= ",
215 $b@(0),@(18),@(0)
220 A=13;B=8;GOSUB 400
230 $b@(36),@(54),@(36)
240 PRINT ;PRINT "INTEREST RATE= ",
250 IF @(45)="0" GOTO 270
260 TV=@(45)
270 TV=@(44);TV=46;TV=@(43);TV=@(42);TV=@(41);TV=37;PRINT
280 PRINT "NO. OF MONTHS= ",#1,M; PRINT
290 PRINT "MONTHLY PAYMENT= ",
300 A=103;B=98;GOSUB 400
310 TV=46;TV=@(97);TV=@(96);PRINT
320 K=Mc100;@(28)=K;M=M-Kb100
330 K=Mc10;@(27)=K;M=M-Kb10;@(26)=M
340 $b@(18),@(90),@(18)
350 PRINT "TOTAL PAYMENTS= ",
360 A=32;B=26;GOSUB 400
370 TV=46;TV=@(25);TV=@(24)
380 PRINT ;STOP
390 .
400 Z=1;FOR K=ATO BSTEP -1
410 IF @(K)="0" IF Z GOTO 430
420 Z=0;TV=@(K)
430 NEXT K
440 RETURN
```

----- will calculate the monthly payment and the total payment when you input the loan amount, the interest rate, and the months the loan will run. Enter these values by the digit,including leading zeros(that is, $20,000 is entered as 020000, and 9% is entered as 09000).

This could be a good start for an amortization program, where each monthly payment is split into its principal and interest portions.

SERVICE MANUAL by Bally (PA-) is on back order again. They like to dole them out by the dozen, so I always have a waiting list...

```
    1 .
    2 .ZAPPIT
    3 .BY R.SWEARINGEN
    4 :RETURN
    5 CLEAR ;NT=0;C=0;GOTO 480
   10 CLEAR ;BC=0;FC=180;NT=0;D=255;PRINT "SCORE ";PRINT #1,C,;X=RND (100)-50;Y=R
ND (50)-25
   20 GOSUB 370
   30 LINE -44,-44,4;LINE 43,43,1;LINE -44,43,4;LINE 43,-44,1
   40 BOX 0,0,160,1,1;BOX 0,0,1,88,1
   50 LINE 0,28,4;LINE 10,26,1;LINE 20,20,1;LINE 26,10,1;LINE 28,0,1
   60 LINE 26,-10,1;LINE 20,-20,1;LINE 10,-26,1;LINE 0,-28,1
   70 LINE -10,-26,1;LINE -20,-20,1;LINE -26,-10,1;LINE -28,0,1
   80 LINE -26,10,1;LINE -20,20,1;LINE -10,26,1;LINE 0,28,1
   90 LINE 0,0,4;Z=1
  100 GOSUB 330
  110 &(21)=2b45;BOX X,Y,32,6,Z;BOX X,Y,38,2,Z
  120 BOX X,Y+3,24,1,Z;BOX X,Y+4,16,1,Z;BOX X,Y+5,8,1,Z
  130 BOX X+21,Y-1,5,4,Z;BOX X-22,Y-1,5,4,Z;BOX X+25,Y-2,3,3,Z;BOX X-26,Y-2,3,3,Z
  140 LINE X+19,Y+1,4;LINE X+30,Y-4,Z;LINE X+24,Y-4,Z;LINE X-26,Y-4,4;LINE X-32,Y
-4,Z;LINE X-21,Y+1,Z
  150 BOX X,Y-4,26,1,Z;BOX X+8,Y-4,7,2,Z;BOX X-8,Y-4,7,2,Z;IF Z=2GOTO 180
  160 LINE X-8,Y+1,4;LINE X-6,Y-1,2;LINE X-6,Y-2,2;LINE X-8,Y-4,2;LINE X-10,Y-2,2
;LINE X-10,Y-1,2;LINE X-8,Y+1,2;LINE X+8,Y+1,4
  170 LINE X+6,Y-1,2;LINE X+6,Y-2,2;LINE X+8,Y-4,2;LINE X+10,Y-2,2;LINE X+10,Y-1,
2;LINE X+8,Y+1,2
  180 LINE 0,0,4;IF Z#2IF TR(1)=1GOTO 210
  190 IF Z=2GOTO 20
  200 IF Z=1 Z=2;&(21)=85;GOTO 110
  210 FC=98;NT=5;&(21)=0
  220 LINE 0,0,4;LINE -24,-44,-1;LINE 24,-44,-4;LINE 0,0,1
  230 FOR Q=0TO 3;MU="$";MU="?";NEXT Q
  240 IF 10>XIF -10<XGOTO 260
  250 GOTO 10
  260 IF 10>YIF -10<YGOTO 280
  270 GOTO 10
  280 C=C+1;Q=RND (15);R=RND (15);FOR A=1TO 8;Q=QbAc2;R=RbAc2
  290 &(19)=150;BC=0;&(23)=255;D=D-3;BC=92;&(21)=D
  300 BOX Q,R,RND (5),RND (5),1;BOX Q,-R,RND (5),RND (5),1
  310 BC=7;BOX -Q,R,RND (5),RND (5),1;BC=92;BOX -Q,R,RND (5),RND (5),1
  320 NEXT A;&(19)=0;&(21)=0;&(23)=0;GOTO 10
  330 IF 10>XIF -10<XGOTO 350
  340 CY=-35;CX=-20;PRINT "TRACKING";RETURN
  350 IF 10>YIF  -10<Y CY=-35;CX=-20;PRINT " LOCKED ";RETURN
  360 GOTO 340
  370 IF JY(1)=0IF JX(1)=0GOTO 420
  380 IF JX(1)=1 X=X-25
  390 IF JX(1)=-1 X=X+25
  400 IF JY(1)=1 Y=Y-25
  410 IF JY(1)=-1 Y=Y+25
  420 X=X+RND (20)-10;Y=Y+RND (20)-10
  430 IF 10>X IF -10<XGOTO 450
  440 RETURN
  450 IF 10>YIF -10<YGOTO 470
  460 RETURN
  470 X=0;Y=0;RETURN
  480 PRINT "DO YOU WANT INSTRUCTIONS ? (1=YES 0=NO)
  490 IF &(23)=8GOTO 520
  500 IF &(22)=16GOTO 10
  510 GOTO 490
  520 PRINT "THIS GAME DOES NOT KEEP
TIME. THE JOYSTICK STEERS THE TARGET,
THE TRIGGER  FIRES THE LASER.
  530 PRINT " NO HIT IS SCORED UNLESS
THE SCREEN READS 'LOCKED'.
  540 FOR A=0TO 1500;NEXT A;GOTO 10
  550 GOTO 10
```

B A G E L S

BAGELS is a game in which a player, using logical deduction, predicts a given number.

In this version, the number is a random 3 digits with no duplicating digits, and after each guess the program displays one of the following responses:

BAGELS	-- No digit is correct
PICO	-- One correct digit is in the wrong place
PICO-PICO	-- Two or more correct digits are in the wrong places
FERMI	-- One correct digit is in the correct place
FERMI-PICO	-- One correct digit is in the correct place and one or more correct digit is in the wrong place
FERMI-FERMI	-- Two or more correct digits are in the correct places

Since the correctness of only two out of three digits is disclosed, after the FERMI-FERMI response the program prompts for the confirmation of the last entry as the player's choice by printing
        GAME GUESS?
Press GO when the player believes that it is the true number. Press any other key to continue entering more guesses.

The program then displays whether the player's choice was right or wrong. When at least one game is won, game statistics will print after each game.

Press GO to start the next game.

A running average is computed as the total number of guesses divided by the number of games won.

Enter 000 to give up guessing the number and to proceed to the next game with a new number. The discontinued game is not considered as a lost game, but the number of guesses (not including the 000 entry) for the current game contributes to the game average.

Use the ERASE key for re-entering the first two digits. When the third digit is entered, the program immediately displays one of the responses.

Good luck and have fun with BAGELS.

```
1 . BAGELS
2 . BAGELS
3 . C MORIMOTO  1979
4 .
10 :RETURN
50 CLEAR ;NT=0;FC=66;BC=7
60 Z=300
70 Q=0;W=0;D=0;C=0;U=0;F=0
100 BOX 5,-5,80,50,1;BOX 5,-5,78,48,3
110 CX=-40;CY=20;PRINT "BAGELS"
120 BOX -26,20,49,11,3
130 NT=5;FOR A=1TO 15
140 CX=RND (3)b20-40;CY=RND (5)b8-30
150 FOR B=1TO 3;TU=47+RND (10);NEXT B;NEXT A
160 NT=0;FC=252
170 CX=25;CY=-39;PRINT "PRESS GO",
175 BOX 63,-39,13,9,3
180 A=RND (10)
190 IF &(23)=0GOTO 180
200 @(4)=RND (10)-1;@(7)=@(4)
210 @(5)=RND (10)-1
220 @(4)=@(5)GOTO 210
230 @(8)=@(5)
240 @(6)=RND (10)-1
250 IF (@(6)=@(4))+(@(6)=@(5))GOTO 240
260 CLEAR ;G=0;Q=Q+1;FC=7;BC=243
270 CY=40;PRINT " GAME",#3,Q
280 IF U CX=0;CY=40;PRINT "AVERAGE",#3,U
300 NT=0;CX=-77;PRINT
310 NT=1;CX=-77;PRINT #2,G+1,">",
320 FOR A=1TO 3
330 X=KP;IF X=31GOTO Z
340 TU=X
350 IF (X<40)-(X>57)GOTO Z
360 IF @(A)=X-48;NEXT A
370 IF @(1)+@(2)+@(3)=0GOTO 750
380 IF (@(1)=@(2))+(@(1)=@(3))+(@(2)=@(3))GOTO 910
500 G=G+1;P=0
510 FOR A=1TO 3
520 IF @(A)=@(A+3)P=P+4
530 IF @(A)=@(A+4)P=P+1
540 IF @(A)=@(A+5)P=P+1
550 NEXT A
610 IF P=0PRINT " BAGELS";GOTO Z
620 IF P=1PRINT " PICO";GOTO Z
630 IF P<=3PRINT " PICO-PICO";GOTO Z
640 IF P=4PRINT " FERMI";GOTO Z
650 IF P<7PRINT " FERMI-PICO";GOTO Z
660 PRINT " FERMI-FERMI?
670 PRINT " GAME GUESS? ",;A=KP
680 IF (A=13)-(A=49)GOTO 700
690 PRINT "NO",;NT=30;MU=18;MU=18;GOTO Z
700 CX=CX-12;PRINT " ";PRINT ;IF P*12GOTO 740
710 PRINT "YOU GOT IT";W=W+1;BC=155
720 NT=8;A=48;MU=99;MU=53;MU=A;MU=49;MU=A;MU=A
730 MU=50;MU=49;MU=A;MU=51;MU=A;MU=51;MU=A;GOTO 790
740 PRINT "SORRY, WRONG NUMBER";D=D+1;BC=66;GOTO 760
750 PRINT ;PRINT ;PRINT "GAVE UP",
760 PRINT "CORRECT NUMBER WAS ",#1,@(4),@(5),@(6)
770 NT=10;MU=51;MU=45;MU=51;MU=51
780 MU=99;MU=55;MU=50;MU=49;MU=99;MU=54;MU=48;MU=48
790 NT=0
800 C=C+G;IF W=0GOTO 860
810 U=CbW;F=(RMb10)bW
820 PRINT " STAT. AFTER GAME #",
830 PRINT " # GAMES WON ....",#2,W
840 PRINT " # GAMES LOST ....",#2,D
850 PRINT " AVE # GUESSES ....",#2,U,".",.,#1,F
860 GOTO 180
900 PRINT " INPUT ERROR",;GOTO 920
910 PRINT " DUPLICATE DIGITS",
920 NT=5;FOR A=1TO 10;MU=87;MU=84;NEXT A
930 GOTO Z
```
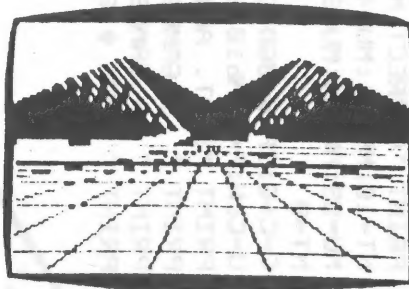
BIORYTHMS CORRECTION   change line 101 to read GOSUB M x 10 + 250

TWENTY SIX

ARCADIAN

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FIRST CLASS